

INTERNATIONAL SEARCH REPORT

International Application No

PC/JP 03/03591

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01J8/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 658 538 A (BEHLING UWE ET AL) 19 August 1997 (1997-08-19) abstract column 1, line 50 -column 2, line 40; figure 1 ---	1-11
X	US 3 212 862 A (AXEL CHRISTENSEN) 19 October 1965 (1965-10-19) column 2, line 40 -column 3, line 42; figure 1 ---	1-11
X	US 3 424 553 A (SIPKES HENDRIK ET AL) 28 January 1969 (1969-01-28) column 3, line 28 - line 76; figure 1 --- -/--	1-11

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

T later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the International search

15 May 2003

Date of mailing of the international search report

28/05/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Thomasson, P

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/JP 03/03591

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	GB 1 065 044 A (CHEMICAL CONSTRUCTION CORP) 12 April 1967 (1967-04-12) page 2, line 121 -page 3, line 80; figure 1 ----	1-11
Y	BE 499 694 A (BASF AG) 16 March 1951 (1951-03-16) page 2, line 8 - line 33; figure 1 ----	1-11
Y	GB 797 574 A (OXY CATALYST INC) 2 July 1958 (1958-07-02) page 5, line 4 - line 35; figure 3 ----	1-11
Y	US 6 221 117 B1 (PLEDGER WILLIAM A ET AL) 24 April 2001 (2001-04-24) abstract column 5, line 24 - line 64; figure 3 ----	1-11
Y	US 6 146 606 A (ATOBE HITOSHI ET AL) 14 November 2000 (2000-11-14) abstract column 9, line 15 - line 38; figure 1 column 10, line 32 - line 48; figure 6 ----	1-11
Y	DE 820 894 C (MANUFACTURES DE PROD CHIM DU N) 15 November 1951 (1951-11-15) page 2, line 35 - line 84; figure 1 ----	1-11
Y	WO 01 91894 A (LOU REN ;LOU SHOULIN (CN)) 6 December 2001 (2001-12-06) abstract page 1; figure 6 ----	1-11
Y	DE 14 26 731 A (UHDE GMBH FRIEDRICH) 2 April 1970 (1970-04-02) page 3; figure 1 -----	1-11

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 03/03591

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5658538	A	19-08-1997	DE 4439807 A1	09-05-1996
			DE 59501278 D1	19-02-1998
			EP 0711595 A1	15-05-1996
			JP 8206487 A	13-08-1996
US 3212862	A	19-10-1965	NONE	
US 3424553	A	28-01-1969	NL 6412227 A	22-04-1966
			DE 1542553 A1	16-04-1970
			FR 1459369 A	29-04-1966
			GB 1072007 A	14-06-1967
GB 1065044	A	12-04-1967	US 3366461 A	30-01-1968
			BE 663562 A	08-11-1965
			DE 1542034 A1	16-04-1970
			DK 117344 B	20-04-1970
			FR 1480125 A	12-05-1967
			IL 23418 A	25-06-1969
			NL 6505748 A	12-11-1965
			NO 116715 B	12-05-1969
BE 499694	A		NONE	
GB 797574	A	02-07-1958	NONE	
US 6221117	B1	24-04-2001	US 5997594 A	07-12-1999
			US 5861137 A	19-01-1999
			US 6376113 B1	23-04-2002
			AU 745858 B2	11-04-2002
			AU 3560699 A	01-05-2000
			BR 9914560 A	26-06-2001
			CA 2345966 A1	20-04-2000
			EP 1138096 A1	04-10-2001
			US 2002083829 A1	04-07-2002
			WO 0022690 A1	20-04-2000
			AU 1084999 A	03-05-1999
			BR 9806317 A	14-03-2000
			EP 0951529 A1	27-10-1999
			JP 2000510526 T	15-08-2000
			WO 9919456 A1	22-04-1999
			US 2002119353 A1	29-08-2002
US 6146606	A	14-11-2000	JP 2000296324 A	24-10-2000
			TW 474834 B	01-02-2002
DE 820894	C	15-11-1951	NONE	
WO 0191894	A	06-12-2001	CN 1320478 A	07-11-2001
			AU 6202001 A	11-12-2001
			WO 0191894 A1	06-12-2001
			EP 1291072 A1	12-03-2003
DE 1426731	A	02-04-1970	DE 1426731 A1	02-04-1970